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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,713	02/17/2006	Kazumi Naito	Q77186	7145
23373 7590 05/02/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER THOMAS, ERIC W	
			ART UNIT 2831	PAPER NUMBER
			MAIL DATE 05/02/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/568,713

Applicant(s)

NAITO, KAZUMI

Examiner

Eric Thomas

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/06, 6/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 22-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22, lines 7-11, the limitation "the method comprising using a lead frame pair having bottom face parts working out to a part of the anode terminal and a part of the cathode terminal, and laminating a metal material which constitutes the anode and cathode terminals having an area larger than the cathode terminal-connected face of the capacitor element on the lead frame corresponding to the cathode terminal" is confusing.

Claim 23, lines 8-14, the limitation, "the method comprising using a lead frame pair having nearly the same bottom face parts working out to a part of the anode terminal and a part of the cathode terminal, laminating a metal material which constitutes the anode and cathode terminals having an area larger than the cathode

Art Unit: 2831

terminal-connected face of the capacitor element on the lead frame corresponding to the cathode terminal, and laminating a metal material constituting the anode terminal connected to the anode part of the capacitor element on the lead frame corresponding to the anode terminal" is confusing.

### ***Claim Rejections - 35 USC § 102***

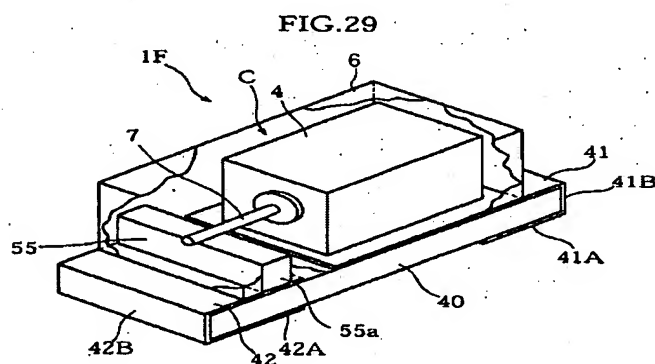
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7, 10, 13-15, 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda (US 2002/0163775).



Maeda discloses in fig. 29 (figs. 1-28), a chip solid electrolyte capacitor obtained by connecting a part of the anode part and a part of the cathode part of a capacitor element (4) to an anode terminal and a cathode terminal, respectively, and jacket-molding (6) the capacitor element excluding a part or the whole of respective bottom

faces or bottom and side faces of the anode and cathode terminals, wherein the connection face of the cathode terminal to the capacitor element is larger than the entire face of the capacitor element in the side connected to the cathode terminal.

Regarding claim 2, Maeda discloses the bottom face part of the cathode terminal and the bottom face part of the anode terminal have nearly the same size.

Regarding claim 3, Maeda discloses the capacitor element is produced by sequentially stacking an oxide dielectric film layer, a semiconductor layer and an electrically conducting layer on a surface of an anode substrate comprising a sintered body of a valve-acting metal or an electrically conducting oxide (see paragraph 81).

Regarding claim 4, Maeda discloses the anode part comprises a distal end of the anode substrate.

Regarding claim 5, Maeda discloses the anode part comprises a metal wire (7) connected to the sintered body.

Regarding claim 6, Maeda discloses the metal wire is tantalum (see paragraph 70).

Regarding claim 7, Maeda discloses the anode and cathode terminals are formed from copper (see paragraph 67, 71).

Regarding claim 8, Maeda discloses the anode and cathode terminals are partially coated with solder (see paragraph 68). Regarding the limitation, "subjected to plating" is a method of forming the device. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has

not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965).

Regarding claim 10, Maeda discloses the anode is formed from tantalum (see paragraph 81).

Regarding claim 13, Maeda discloses the boundary between the anode part and the part excluding the anode part of the anode substrate is insulated by an insulating resin (see fig. 29).

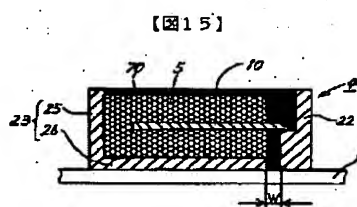
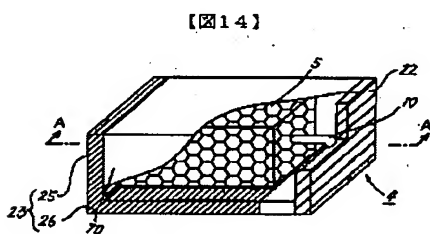
Regarding claim 14, Maeda discloses the oxide dielectric layer comprises tantalum oxide ( $\text{Ta}_2\text{O}_5$ ).

Regarding claim 15, Maeda discloses the semiconductor layer is an organic semiconductor layer or an organic semiconductor layer.

Regarding claim 24, Maeda discloses the chip solid electrolyte capacitor is used in an electronic circuit (paragraph 2).

Regarding claim 25, Maeda discloses the chip solid electrolyte capacitor is used in an electronic device (paragraph 2).

6. Claims 1,3, 5, 7-8, 10, 13-18, 20-25 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2003-133177.



'177 discloses in fig. 14-15, a chip solid electrolyte capacitor obtained by connecting a part of the anode part and a part of the cathode part of a capacitor element to an anode terminal (22) and a cathode terminal (26), respectively, and jacket-molding (70) the capacitor element excluding a part or the whole of respective bottom faces or bottom and side faces of the anode and cathode terminals, wherein the connection face of the cathode terminal to the capacitor element is larger than the entire face of the capacitor element in the side connected to the cathode terminal.

Regarding claim 3, '177 discloses the capacitor element is produced by sequentially stacking an oxide dielectric film layer, a semiconductor layer and an electrically conducting layer on a surface of an anode substrate comprising a sintered body of a valve-acting metal or an electrically conducting oxide (paragraph 4).

Regarding claim 5, '177 discloses the anode part comprises a metal wire (7) connected to the sintered body.

Regarding claim 7, '177 discloses the anode and cathode terminals are formed from copper (paragraph 18)

Regarding claim 8, '177 discloses the anode and cathode terminals are partially coated with solder. Regarding the limitation, "subjected to plating" is a method of forming the device. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965).

Regarding claim 10, '177 discloses the anode is formed from titanium (see paragraph 4).

Regarding claim 13, '177 discloses the boundary between the anode part and the part excluding the anode part of the anode substrate is insulated by an insulating resin.

Regarding claim 14, '177 discloses the oxide dielectric layer comprises tantalum oxide ( $\text{TiO}_2$ ).

Regarding claim 15, '177 discloses the semiconductor layer is an organic semiconductor layer or an organic semiconductor layer.

Regarding claims 16-18, '177 discloses the semiconductor organic semiconductor layer is formed from polypyrrole (see paragraph 17).

Regarding claim 20, '177 discloses the inorganic semiconductor is manganese dioxide (see paragraph 4).

Regarding claim 21, '177 discloses the electrical conductivity of the semiconductor is from  $10^{-2}$  to  $10^3$  S/cm (polypyrrole).

Regarding claim 22, as best understood, '177 discloses a method for producing a chip solid electrolyte capacitor in which a part of the anode part and a part of the cathode part of a capacitor element are connected to an anode terminal and a cathode terminal, respectively, and the capacitor element excluding a part or the whole of respective bottom faces or bottom and side faces of the anode and cathode terminals is molded with a jacket and in which the connection face of the cathode terminal to the capacitor element is larger than the entire face of the capacitor element in the side connected to the cathode terminal, the method comprising using a lead frame pair having bottom face parts working out to a part of the anode terminal and a part of the cathode terminal, and laminating a metal material which constitutes the anode and



Art Unit: 2831

cathode terminals having an area larger than the cathode terminal-connected face of the capacitor element on the lead frame corresponding to the cathode terminal.

Regarding claim 23, as best understood, '177 discloses a method for producing a chip solid electrolyte capacitor in which a part of the anode part and a part of the cathode part of a capacitor element are connected to an anode terminal and a cathode terminal, respectively, and the capacitor element excluding a part or the whole of respective bottom faces or bottom and side faces of the anode and cathode terminals is molded with a jacket and in which the connection face of the cathode terminal to the capacitor element is larger than the entire face of the capacitor element in the side connected to the cathode terminal and the bottom face parts of the cathode terminal and the anode terminal which are not jacket-molded have nearly the same size, the method comprising using a lead frame pair having nearly the same bottom face parts working out to a part of the anode terminal and a part of the cathode terminal, laminating a metal material which constitutes the anode and cathode terminals having an area larger than the cathode terminal-connected face of the capacitor element on the lead frame corresponding to the cathode terminal, and laminating a metal material constituting the anode terminal connected to the anode part of the capacitor element on the lead frame corresponding to the anode terminal.

Regarding claim 24, '177 discloses the chip solid electrolyte capacitor is used in an electronic circuit.

Regarding claim 25, '177 discloses the chip solid electrolyte capacitor is used in an electronic device.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda (US 2002/0163775) in view of Naito (US 2007/0002526)

Regarding claim 11, Maeda discloses the claimed invention except for a part of the valve-acting metal is subjected to at least one treatment selected from carbidation, phosphation, boronation, nitridation and sulfidation.

Naito teaches that treating part of tantalum with a nitridation process improves the electrical properties of the capacitor (anode).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to subject a part of the tantalum anode of Maeda with a nitridation process as taught by Naito, since such a modification would produce a capacitor having a low LC value.

Regarding claim 12, Maeda discloses the claimed invention except for the sintered body has a chemically and/or electrically etched surface.

Naito teaches that treating a sintered body by an etching process improves the electrical properties of capacitor anodes.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to etch the sintered body of Maeda as taught by Naito, since such a modification would increase the surface area of the anode.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda (US 2002/0163775) in view of Waldenburger (DE 2509856)

Maeda discloses the claimed invention except for each of the anode and cathode terminals differs in the material.

Waldenburger teaches that it is known in the solid electrolytic capacitor art to form the anode and cathode terminals from different materials.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the anode and cathode terminals of Maeda from different materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over 2003-133177 in view of Kobayashi et al. (US 6,219,223)

'177 discloses the claimed invention except for the electrically conducting polymer is formed from poly (3,4-ethylenedioxythiophene).

Kobayashi et al. teach that poly (3,4-ethylenedioxythiophene) is a known material used in the capacitor art.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrically conducting polymer from poly (3,4-

Art Unit: 2831

ethylenedioxythiophene), since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 3,588,629 – a chip solid electrolyte capacitor

US 4,757,423 – solid electrolytic capacitor

US 6,185,090 – nitrided tantalum pellet

JP 2001-244145 – solid electrolytic capacitor

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Thomas whose telephone number is 571-272-1985.


The examiner can normally be reached on Monday - Friday 6:30 AM - 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2831

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ewt

 4-30-02  
**ERIC W. THOMAS**  
**PRIMARY EXAMINER**